Claims

What is claimed is:

1. A method for fabricating an organic memory cell comprising:

forming a substrate silver layer having a surface that acts as a base for an organic memory cell to be created thereupon;

performing a CMP process on the surface;

exposing the post CMP surface to an inorganic acid for shaping a surface depression thereupon;

growing a passive layer within the depression; and

applying an organic acid to a surface of the grown passive layer, such that a substantially smooth surface texture is obtained.

2. The method of claim 1, further comprising;

forming a dielectric layer over the passive layer;

forming a layer of organic material over the passive layer; and,

forming a second layer on the organic material.

3. The method of claim 1, further comprising:

plating the passive layer by an electroless process.

4. The method of claim 3, further comprising:

controlling the plating process by a controller.

5. The method of claim 1, further comprising:

etching a surface protrusion of the passive layer to a post CMP surface level.

6. The method of claim 1, further comprising:

exposing the post CMP surface to the inorganic acid in several cycles, and

applying the organic acid in several cycles.

7. A system for removing surface irregularities from a silver electrode layer of a memory cell comprising:

means for forming a silver electrode layer having an electrode surface;

means for creating a void on the silver electrode surface;

means for growing a passive layer within the void, such that a crest surface of the passive layer protrudes above the silver electrode surface; and

means for a leveling off the crest surface to a desired level.

8. A system according to claim 7, the silver electrode surface being a flat surface.

9. A method for planarizing a CMP processed silver interconnect surface comprising:

providing a CMP processed silver interconnect having an initial surface with micro scratches;

exposing the initial surface to an inorganic acid for shaping a void thereupon;

growing a passive layer comprising Ag_2S within the void, such that a surface of the passive layer forms a protrusion out of the void, extending beyond the initial surface; and

exposing the passive layer to an organic acid.

10. The method of claim 9, further comprising:

selectively depositing an activation compound over the void;

applying a chemical solution to the activation compound as to initiate an electroless reaction, the chemical solution comprising silver metal ions as well as a reducing agent; and

reducing the metal ions of the chemical as to plate the passive layer within the void.

11. The method of claim 9, further comprising:
growing an Ag_2S or an Ag layer.

12. The method of claim 10, further comprising:
employing at least one of an ammonium hydroxide, an ammonium carbonate, and an ammonium bicarbonate, in the chemical solution.

13. The method according of claim 10, further comprising:
controlling the growing of the passive layer within the void.

14. The method according to claim 10, further comprising:
employing a hydrazine reducer.

15. An organic memory device comprising:

a first electrode in contact with a silver substrate having a treated surface with a substantially smooth texture;

a selectively conductive media formed on the first electrode, the selectively conductive media facilitating migration of charge, the selectively conductive media comprising an organic material, and the charge comprising at least one of electrons and holes; and

a second electrode, wherein a selected voltage is applied to the first electrode and the second electrode in order to set an impedance state of the selectively conductive media.

16. The organic memory device according to claim 15, the silver substrate layer rests upon a cap layer that affects a resistance capacitance delay.

17. The organic memory device according to claim 15, the treated surface is flat.

18. The organic memory device according to claim 15, the selective conductive media comprises a passive layer formed on the first electrode and an organic polymer layer formed on the passive layer.

19. The organic memory device according to claim 18, the passive layer comprises an Ag/Ag_2S formation.

20. The organic memory device according to claim 18, the selected voltage being one of a number of voltages that corresponds to the resulting impedance state.